



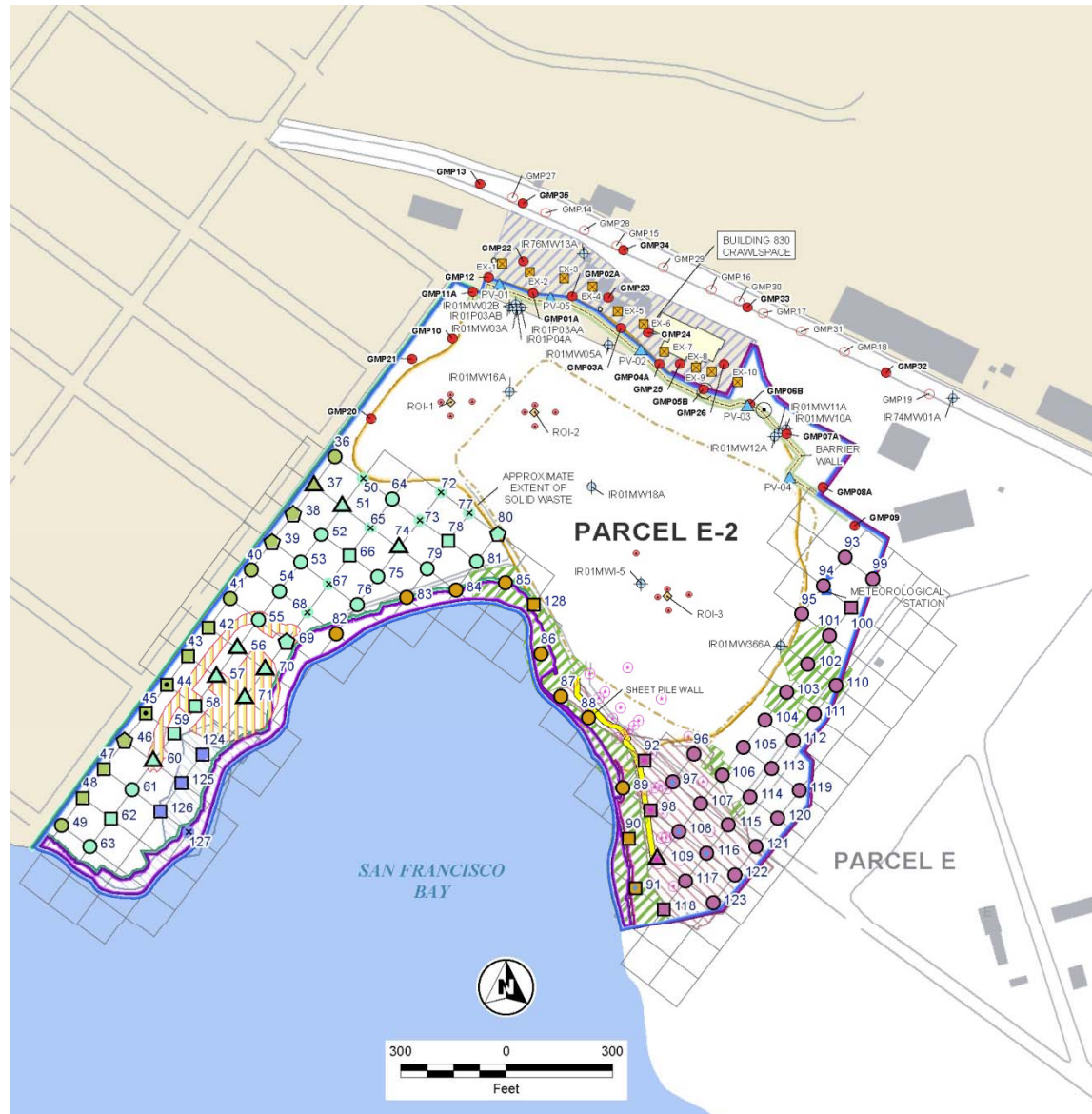
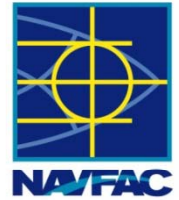
Hunters Point Naval Shipyard BCT Meeting



Parcel E-2 Landfill Gas Survey



Parcel E-2 Landfill Gas Survey



- Screen depth at 5.25' to 5.75' below ground surface
- ◻ Top of screen depth between 4' and 5' bgs
- ◻ Top of screen depth between 3' and 4' bgs
- △ Top of screen depth between 2.5' and 3' bgs
- × Probe not installed due to shallow groundwater
- Water detected in probe
- Water detected in probe, re-installed
- Suspected petroleum product detected in probe
- Western Boundary Monitoring Probe
- Background Level Monitoring Probe over Bay Mud
- Shoreline Area Monitoring Probe
- Panhandle Area Monitoring Probe
- East Adjacent Area Monitoring Probe
- ◇ Extraction Well (Proposed for ROI)
- Observation Probe (Proposed for ROI)
- Gas Monitoring Probe
- Extraction Well
- Passive Vent
- Gas Monitoring Probe
- Former Gas Monitoring Probe
- Monitoring Well
- Other Monitoring Well
- 100-ft Grid
- Groundwater Extraction System Piezometer
- Catch Basin Discharge Point
- Meteorological Station
- East Adjacent Area
- Panhandle Area
- Shoreline Area
- Ship Shielding Excavation
- PCB Area (2012 excavation limit)
- Metal Slag Area (2007 excavation limit)
- PCB Hot Spot Area (2007 excavation limit)
- Limit of Landfill Cap
- Approximate Extent of Solid Waste
- HDPE Barrier Wall and Extraction Trench
- GROUTED SECTION OF HDPE BARRIER WALL
- Sheet Pile Wall
- UCSF Property
- Parcel E-2 Boundary
- Building
- Road
- Non-Navy Property



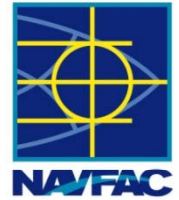
Parcel E-2 Soil Gas Probe Installation



- 92 proposed/1 new soil gas probe locations drilled
 - 1 new location added to supplement probe 86 (discussion to follow).
 - 8 locations not installed due to groundwater shallower than 4' bgs.
 - 47 probes installed with screens at preferred depth of 5'-6' bgs.
 - 38 probes installed with shallower screens (from 2.5'-3.5' bgs to 4'-5' bgs) due to presence of groundwater.
 - 3 locations re-installed due to water in probes.
- 85 probe locations completed
 - Currently being sampled via real-time instruments for methane, carbon dioxide, oxygen, and VOCs.



Parcel E-2 Soil Gas Probe Installation



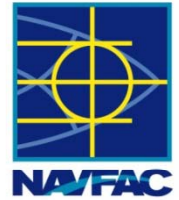


Parcel E-2 Soil Gas Probe Installation Radiological Screening





Parcel E-2 Soil Gas Probe Installation Sand Pack



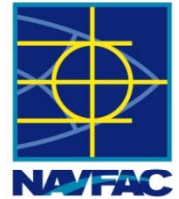


Parcel E-2 Soil Gas Probe Installation Bentonite Grout





Parcel E-2 Soil Gas Probe Installation Grouted Probe





Parcel E-2 Soil Gas Probe Installation Probe with Concrete Apron





Parcel E-2 Soil Gas Probe Installation Completed Probe with PVC Casing





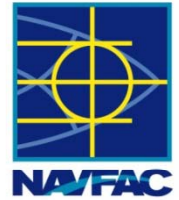
Shoreline Plume Near Probe #86



- Shoreline seepage noted near probe 86
 - Dark area on sand, no sheen on sand or water.
 - Survey of material reported 0.0 parts per million VOCs and 0% LEL.
 - Methane detected in Probe 86 at 66% by volume.
 - VOCs detected in Probe 86 at 1.9 parts per million.
 - Additional probe (128) installed between Probes 86 and 85 to close data gap.
- Area designated for future excavation by Draft Parcel E-2 Design Basis Report



Debris in Borehole 86



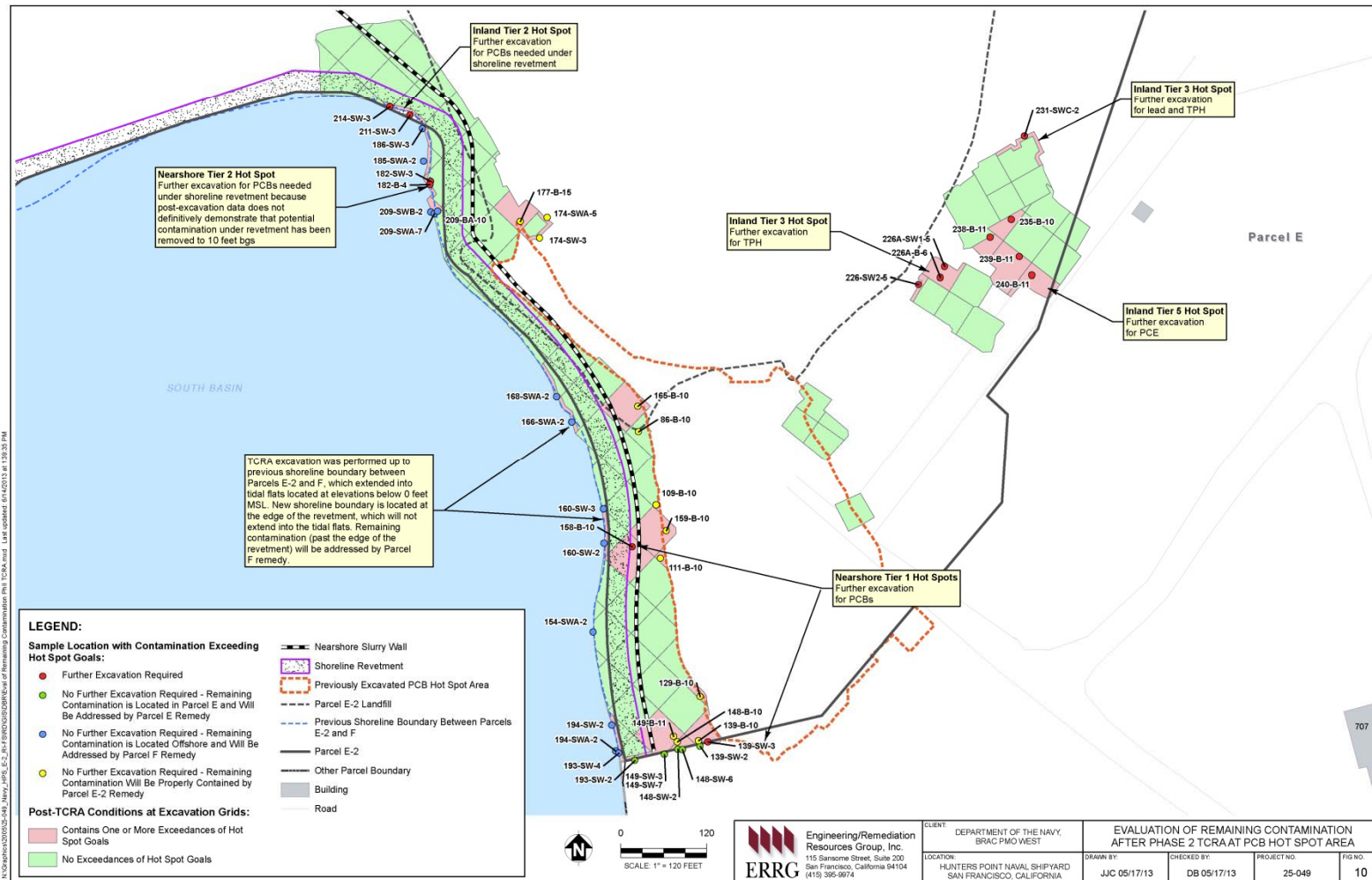
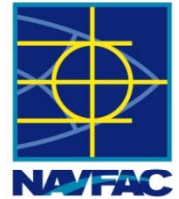


Shoreline Seepage/ Probe 86





Design Basis Report Proposed Excavations





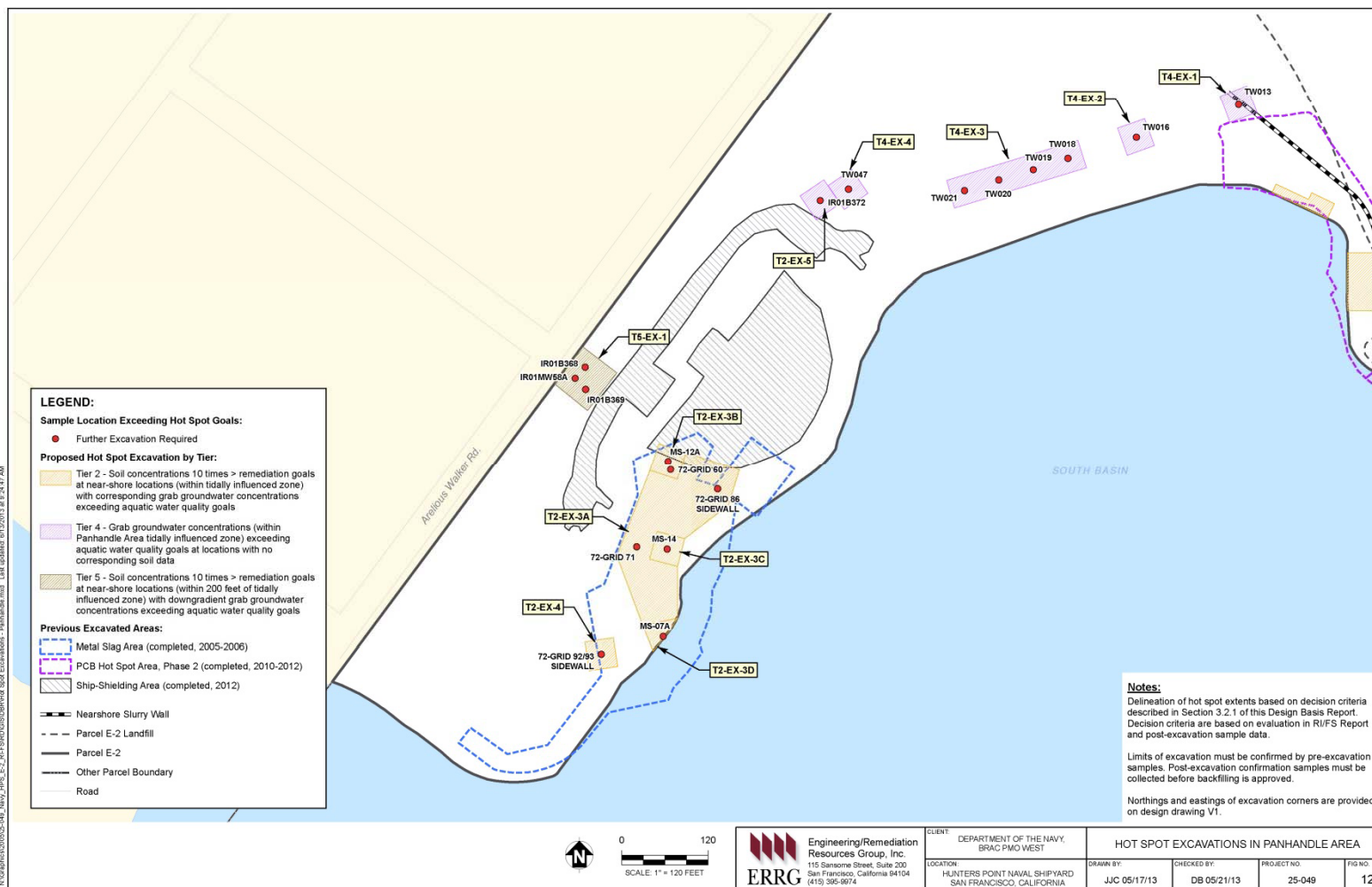
Suspected Product in Boreholes 44/45



- Suspected petroleum encountered in Boreholes 44/45 at approximately 6' bgs.
 - Boring logs noted oily stained soil and strong odor.
 - PID of 6' samples from Boreholes 44 and 45 were 310 and 860 ppm, respectively.
 - Probe 44 reported 16.8% methane by volume and 178.4 ppm VOCs.
 - Probe 45 reported 47.7% methane by volume and 205.1 ppm VOCs.
 - Drill cuttings segregated for waste disposal profiling.
- Area designated for future excavation by Draft Parcel E-2 Design Basis Report



Design Basis Report Proposed Excavations





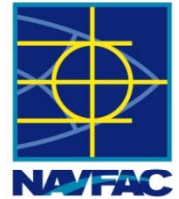
Parcel E-2 Soil Gas Sampling



- 85 soil gas probes to be sampled via real-time instruments for methane, carbon dioxide, and VOCs.
- Based on real-time screening data, 46 soil gas probes to be sampled for laboratory analysis of fixed gases (methane, carbon dioxide, oxygen), VOCs, and SVOCs.
- Meeting with BCT to review sampling locations is proposed the week of July 8, 2013.
- Proposed sample locations to be based on presence of methane, presence of VOCs, depth, flow/recharge rate.
- Purge volume test performed on June 11, 2013 – samples collected at one, three, and ten purge volumes on East Adjacent Area probe with highest real-time VOC reading (113).

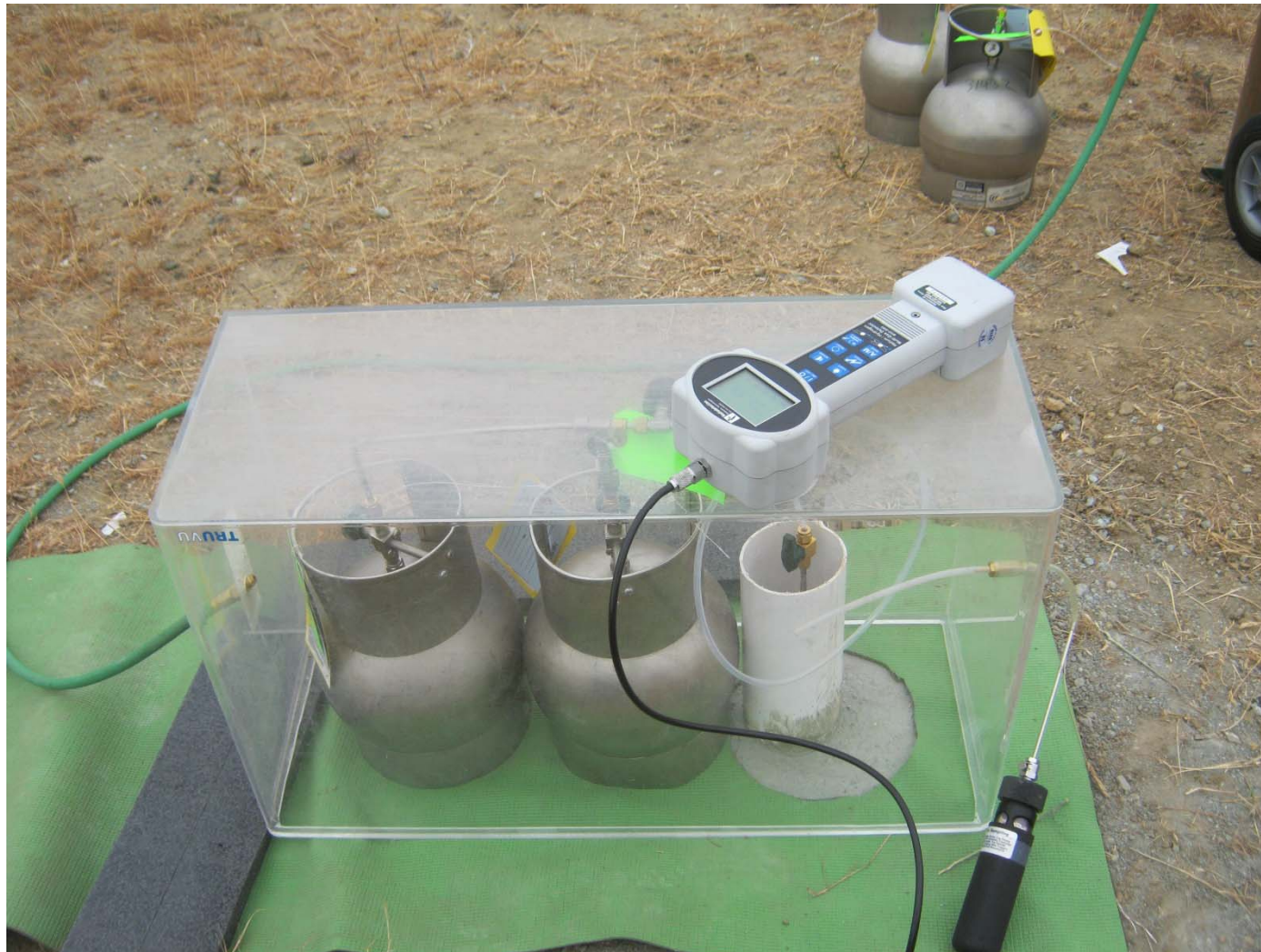


Parcel E-2 Soil Gas Sampling Sampling Shroud with Helium Tank



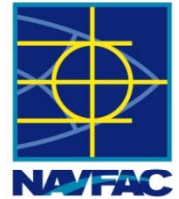


Parcel E-2 Soil Gas Sampling Sampling Shroud with Helium Meter





Parcel E-2 Landfill Gas Generation/ Radius of Influence Study



- 3 Radius of Influence (ROI) vapor extraction wells and 13 pressure monitoring probes to be installed into landfill.
- Landfill liner exposed before wells installed, to allow for repair following well installation (June 10-20).
- Static temperature/pressure/flow readings, and landfill gas analytical samples (fixed gases, VOCs, SVOCs, and pesticides) to be collected from ROI wells prior to extraction.
- Gradually-increasing vacuum to be applied to ROI wells, to determine maximum flow rates.
- Pressure readings will be collected at pressure probes to determine extraction well radius of influence.
- Landfill gas reserves will be depleted and then monitored while recharging in order to estimate landfill gas generation rates.

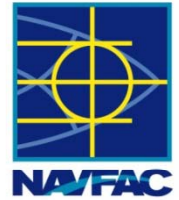


Parcel E-2 ROI Study Exposure of Geosynthetic Liner





Parcel E-2 ROI Study Dust Control





Parcel E-2 ROI Study Dust Control





Parcel E-2 ROI Study Finished Excavation





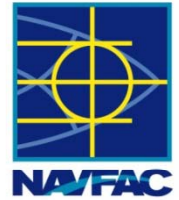
Breach in Geosynthetic Cover/Liner



- Groundwater well IR01MW17B overdrilled and grouted in November 2009.
- Area excavated to inspect; geosynthetic cover/liner not repaired following grouting.
- Survey of breach reported 0.0 parts per million VOCs; 5% LEL (0.25% by volume) at the opening and 0% LEL in the breathing zone.
- Area exposed to allow for repair of breach during repair of liner around ROI wells/pressure probes (week of July 15).



Breach in Geosynthetic Cover/Liner



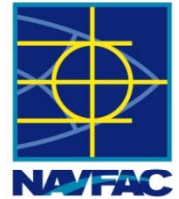


Breach in Geosynthetic Cover/Liner





Field Work Schedule



May 28 – July 1: Soil gas probe installation, followed by real-time soil gas analysis after 48 hours equilibration

June 25 – July 16: Radius of influence well/pressure probe installation

July 16 – August 12: Soil gas probe sampling for laboratory analysis and simultaneous construction of soil vapor extraction system

August-November: Conduct landfill gas generation/radius of influence testing on installed wells/probes

April 2014: Draft Parcel E-2 Landfill Gas Evaluation Report